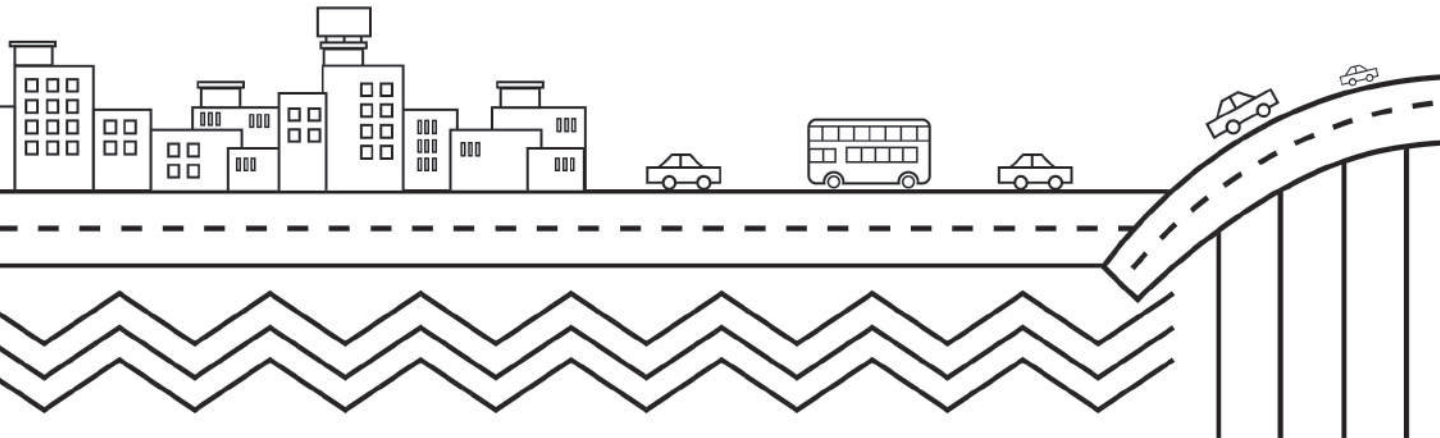
Process Document of
Climate Resilient Migrant Friendly Town



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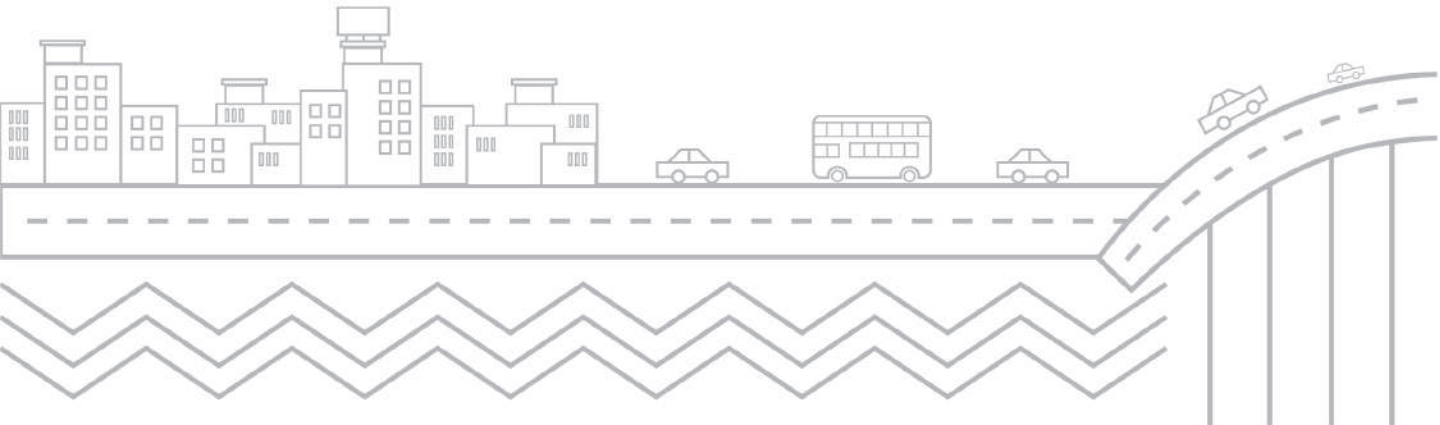

Developed By
International Centre for Climate Change and Development (ICCCAD)

Facilitated By
Urban Development Programme (UDP), and Climate Change Programme (CCP), BRAC

Coordinated By
Global Center on Adaptation (GCA)

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Acknowledgment

We express our deep appreciation to Dr. Saleemul Haque, renowned climate scientist and founding director of the International Centre for Climate Change and Development (ICCCAD). His pioneering concept of climate resilient, migrant-friendly secondary towns has shaped the foundation of our initiative in Mongla Port Municipality, Bagerhat, which has been selected as the model town for its significant exposure to climate change impacts and economic opportunities.

Our sincere thanks go to UKAID and the Foreign, Commonwealth, and Development Office (FCDO) for their financial support, essential in realizing this project. The technical guidance from The Society for the Promotion of Area Resource Centers (SPARC) has been invaluable in steering our strategies.

We also acknowledge the vital contributions of the BRAC field team and their collaboration with BRAC's Urban Development Program (UDP) in implementing this project. The dedication of the Mayor and local government authorities of Mongla Port Municipality has been crucial in the successful rollout of the program.

Special mention goes to the Global Center on Adaptation (GCA) for their conceptual and supportive role in this initiative, instrumental in transforming the concept into a practical model for sustainable urban development.

Content

Background

Climate change is a pressing global challenge, particularly for deltaic regions impacting coastal communities facing rising sea levels, extreme weather events, and climate-induced migration. The consequences of these are undeniable in contemporary global perspectives. As the urgency of the situation intensifies, it has become evident that solutions cannot be sourced solely from international conferences. Rather, sustainable solutions find their foundation in the very communities inhabiting the affected areas, as these communities possess the most profound understanding of the challenges they directly face.

As one of the world's most vulnerable countries, Bangladesh's coastal belt is suffering most severely from climate change, resulting in climate migrants in particular areas. However, migration in Bangladesh is more difficult due to overpopulation and resource exploitation. To address this issue, renowned climate scientist and founding director of International Centre for Climate Change and Development (ICCCAD), Dr. Saleemul Haque came up with the concept of climate resilient, migrant-friendly secondary towns. As it is severely exposed to the adverse impacts of climate change and due to its considerable economic opportunities, Mongla Port Municipality was chosen as the first test case and model town for climate resilient migrant friendly towns in Bangladesh. Our approach in Mongla has been particularly shaped by the successful execution of the Mukuru Special Planning Area for urban informal settlements, which focuses on climate resilience. The insights and participatory methods from the Mukuru guide have significantly influenced our narrative, bringing valuable perspectives on community engagement and resilience

building to the forefront of our efforts in Mongla. This guideline was jointly developed by BRAC's Urban Development Programme (UDP) and Climate Change Programme (CCP), alongside the International Centre for Climate Change and Development (ICCCAD), and the Society for the Protection of the Rights of the Child (SPARC) which introduces a methodology for conducting a process through locally-led adaptation within the context of Mongla Port Municipality.

As this journey continued, the principles of Locally Led Adaptation (LLA) shone brightly, reminding everyone that adapting to change is not just about getting through tough times. This is about coming out stronger on the other side. The road ahead is clear. It involves listening to local voices, recognizing their wisdom, and ensuring that our plans and actions reflect the real needs and dreams of the people.

The strategy is built upon a set of fundamental principles. First and foremost, they are dedicated to strengthening climate resilience in vulnerable coastal towns by creating effective adaptation strategies. They prioritize inclusivity and acknowledge the valuable contributions of climate migrants to sustainable development. In particular, collaboration and coordination among diverse stakeholders are pivotal to an integrated approach to climate resilience initiatives. As such, data-driven decision-making, which includes vulnerability assessments and community engagement, forms the foundation for evidence-based adaptation planning. Finally, their unwavering commitment to promoting sustainable development practices, while considering environmental, social, and economic factors, ensures the long-term stability and scalability of their approach, ultimately fostering a resilient and sustainable future.

This guideline has sparked a new way of thinking. Instead of waiting for solutions to come down from above, local communities, especially smaller communities, decided to take matters into their own hands. The Local Climate Adaptation Plans (LCAPs), Ward Climate Adaptation Plan (WCAP), and Town Climate Adaptation Plan (TCAP) are not just plans on paper. They became the voices of the community as they began to tell stories - the stories of farmers who felt the changing seasons, of children who noticed different patterns in weather, and of elders who remembered how things used to be. Together, these tales created a picture of hope, strength, and drive to make a change.

Combining the insights from the Local Climate Adaptation Plans (LCAPs) with the larger plans was more than a task. It was similar to putting together pieces of a puzzle, each showing a unique challenge or solution, to create a full picture of resilience.

Community meetings and training were more than formal events. There were moments when people shared their experiences, worries, and hopes. They talked, laughed, and sometimes even argued. However, every conversation, nod of agreement, and handshake was a step forward.

Mongla Port Municipality Overview

Mongla Municipality, officially known as Mongla Port Paurashava, is a coastal city in the Bagerhat district of Bangladesh. Its strategic position on the banks of the Pashur River contributes significantly to its economic growth, largely through the activities of its significant seaport, the second largest in Bangladesh. This port is essential for the country's import and export activities, facilitating considerable maritime traffic.

A unique feature of Mongla is its nearness to the Sundarbans, the world's largest mangrove forest, and a UNESCO World Heritage Site, which adds not only to the city's natural beauty but also provides ecological services. The Sundarbans are a natural barrier against coastal erosion and are home to diverse flora and fauna, including the endangered Bengal tigers. However, Mongla's geographical location also affects it, as it is highly exposed to the impacts of climate change. The city confronts various climate-related challenges, such as sea-level rise, cyclones, storm surges, and salinity intrusion. Studies have observed increasing soil and water salinity, pronounced land and riverbank erosion, and the emergence of new char land in nearby areas, highlighting the severity of these climate impacts (Roy et al., 2022).

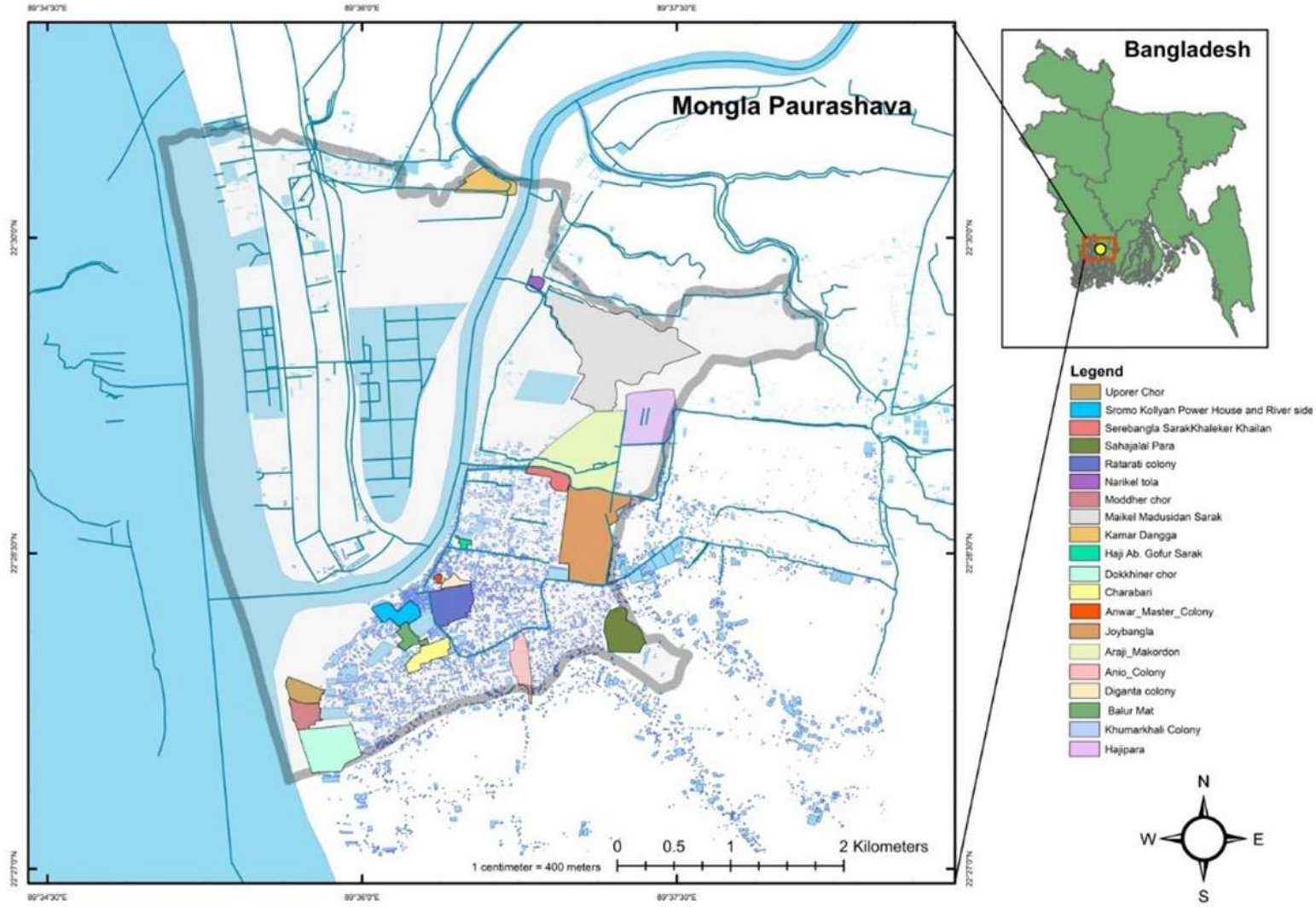
Economically, the city's industries, including shipping, fishing, and tourism, are feeling the strain of climate change. Rising sea surface temperatures and salinity levels affect key sectors like shrimp and prawn farming. The economic turbulence is tangible at the grassroots level, with a significant portion of households in the Bagerhat district, where

Demographic of Mongla Port Municipality

Area: **19.4 km2**
Population: **42,606**
Male: **51%**
Female: **49%**
Per capita income: **3,904.30 Taka**

Mongla is located, earning less than BDT 50,000 per month. The Bangladesh Delta Plan 2100 projects a potential loss of 1.3% of the national GDP annually until 2041, escalating to 9% by 2100 due to climate change impacts (GED, 2018, p. 113).

In response to these challenges, Mongla is growing into a climate-resilient, migrant-friendly town. Over the last four years, investments have doubled at the Mongla Export Processing Zone, creating job opportunities and drawing at-risk individuals from remote villages. Once vulnerable to floods and erosion, the town has become more resilient with improved infrastructure against high tides and erosion. The local government has proactively constructed embankments, flood-control gates, a better drainage system, a water reservoir, and a water treatment plant. While Mongla faces considerable challenges due to climate change, it is simultaneously transforming into a resilient urban center, offering hope and new opportunities to its residents and incoming migrants affected by climate-related adversities.


Mongla Paurashava
Bangladesh
Legend
Uporer Chor
Sromo Kollyan Power House and River side
Serebangla SarakKhaleker Khailan
Sahajalal Para
Ratarati colony
Narikel tola
Moddher chor
Maikel Madusidan Sarak
Kamar Dangga
Haji Ab. Gofur Sarak
Dokkhiner chor
Charabari
Anwar_Master_Colony
Joybangla
Araji_Makordon
Anio_Colony
Diganta colony
Balur Mat
Khumarkhali Colony
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1 centimeter = 400 meters

Climate Context of Mongla

Sea-Level Rise and Coastal Vulnerability: Mongla is increasingly vulnerable to the impacts of climate change, particularly the rising sea levels. This vulnerability is accentuated by its position in the Bay of Bengal, where sea levels are escalating at a rate surpassing the global average. This trend poses significant risks to the region, as outlined in various studies and government reports. The Government of Bangladesh has acknowledged the serious implications of sea-level rise in Mongla, projecting increases of 14 cm by 2030, 32 cm by 2050, and as much as 88 cm by the end of the century (Government of Bangladesh, 2020, p. 847). These figures indicate a future where Mongla may face substantial environmental changes with far-reaching effects on its communities and infrastructure.

Research conducted in the Banishanta and Sutarkhali Union areas within Mongla reveals the immediate consequences of these rising sea levels. Findings suggest a notable increase in soil and water salinity, exacerbating challenges in agriculture and threatening vital freshwater sources (Roy et al., 2022). Additionally, the erosion of land and riverbanks, along with the formation of new char lands, are reshaping the landscape and posing new challenges for land management and human settlements.

Salinity Intrusion: Salinity intrusion is a significant environmental challenge in the coastal regions of Bangladesh, encompassing about 32% of the country's total land area. This issue has been escalating over the years, with a notable portion of the country's coastal areas experiencing varying degrees of salinity. The situation has been exacerbated by both anthropogenic activities and the impacts of climate change.

A comprehensive study highlighted a significant increase in soil salinity across Bangladesh's coastal regions. Between 1973 and 2009, soil salinity rose from 0.833 million hectares to 10.56 million hectares, which equates to an average annual increase of approximately 0.74%. This trend has affected around 3.5% of the coastal land, with significant implications for agriculture and the ecosystem (Habiba et al., 2013; Soil Resources Development Institute [SRDI], 2010; Dasgupta et al., 2015; Dey et al., 2023). The impact of salinity is particularly pronounced in the southwestern and southeastern regions of Bangladesh, where around 60% and 15% of the arable land, respectively, are affected by salinity during dry periods. This salinity intrusion is primarily caused by factors such as cyclone and storm surges, high spring tide inundation, and capillary actions. The adverse effects of increased salinity on soil surface and root zones lead to a significant reduction in crop production, estimated at about 0.13 metric tons annually. The situation is predicted to worsen by 2050, with an expected increase in salinity levels leading to a potential loss of around 10% of food production in the coastal areas. The expansion of salinity and the corresponding reduction in arable land are driven by the ongoing effects of climate change and the decreasing expanse of floodplain areas. This scenario presents a grim outlook for the coastal regions of Bangladesh, potentially spreading to other parts of the country (Rahman & Bhattacharya, 2006).

Every single pond in our vicinity is now saline-prone. The situation has forced us into a routine of walking or rowing boat for nearly 2 kilometres to fetch water. It's a relentless journey just for a pitcher of water. The stark reality is that we are left with two choices: endure the difficult journey or bear the financial strain of purchasing drinking water.

-Fahima Khatun, Narikel Tola Gucchogram

Cyclones and Storm Surges: Mongla Port Municipality is particularly vulnerable to the impacts of cyclones and storm surges. These climatic events are not just sporadic occurrences but a recurrent threat, bringing with them not only immediate destruction but also profound long-term socio-economic consequences for the community. Cyclones, characterized by strong winds, heavy rains, and tidal surges, often lead to extensive damage to homes, infrastructure, and livelihoods. The aftermath of such events usually involves a long recovery process, impacting the economic stability and overall well-being of Mongla's residents. Additionally, the fear and uncertainty associated with these recurring natural disasters contribute to psychological stress among the community members. In conjunction with the threat of cyclones, Mongla also contends with the challenges of coastal flooding and waterlogging. These issues are exacerbated by the region's low-lying geography and often inadequate drainage infrastructure.

Consequently, the city experiences frequent disruptions in its daily life and economic activities. The prevalence of waterlogging is evident, with approximately 7.72% of households in Mongla's communities being affected by these conditions. The impact of waterlogging is multifaceted, affecting not only the physical landscape but also the agricultural productivity and the health and hygiene conditions in the area (General Economics Division [GED], 2018). These environmental challenges necessitate robust adaptation and mitigation strategies to enhance Mongla's resilience against cyclones, storm surges, coastal flooding, and waterlogging. Effective disaster management, infrastructure development, and community engagement are critical components in addressing these issues, ensuring the city's sustainable growth and the well-being of its residents.

Cyclones make our roofs fly like kites. During those times we turn to the almighty and hope for mercy. We seek refuge in a cyclone shelter at that time. However, the time tenure of staying in shelters is more challenging. The limited space available lacks the necessary segregation for men, women, and pregnant individuals, making the prospect of sheltering there less than ideal.

-Rohima Begum, Narikel Tola Gucchogram

Socio-economic Context of Mongla

Economic Backbone: Mongla Port Municipality is experiencing significant changes due to rapid urbanization and climate-induced migration. As a result, there is an increasing strain on the existing infrastructure and services, highlighting the need for sustainable urban planning and migrant integration strategies. The resilience of Mongla communities in the face of these economic and environmental challenges is significant. Local initiatives and community-led adaptations are important in mitigating the impacts and providing sustainable solutions. The active participation of the community in these initiatives reflects their commitment to resilience and adaptability.

Mongla's economy is its port, which contributes to both local and national economies. The port facilitates maritime trade and commerce, supporting key industries like shipping, fishing, and tourism. However, these economic activities are increasingly threatened by climate-induced disruptions, highlighting the city's vulnerability due to its reliance on climate-sensitive sectors.

According to the Bangladesh Export Processing Zone Authority, the Mongla Export Processing Zone (EPZ) is an aspect of the city's financial growth. During the period of July to September 2020, the Mongla EPZ gained an investment of US$ 0.62 million, contributing to the total US$ 81.04 million invested in Bangladesh's eight EPZs. This period also saw the creation of 194

new job opportunities in Mongla EPZ, a part of the total of 6536 new jobs across all EPZs in the country. Additionally, Mongla EPZ exported goods worth US$ 19.52 million during the first quarter of the fiscal year 2020-21, which was part of the total export earnings of US$ 1579.61 million achieved by all the EPZs in Bangladesh during that period.

Beyond the EPZ, Mongla's industrial landscape is diverse, encompassing various sectors that contribute significantly to its economy. According to the National Population Census 2011, the city is home to several key industries and manufactories, including one EPZ, four cement factories, three LP Gas factories, eight auto rice mills, six husking rice mills, and two flour mills. These industries not only strengthen the economic fabric of Mongla but also play a crucial role in job creation and local development.

Gender Dynamics and Inequalities: Mongla, as a port city situated in Bangladesh's Bagerhat district, is at a necessary juncture of economic opportunities and challenges. The port and its related industries offer substantial economic possibilities. However, the city is grappling with marked income disparity. A significant portion of households live below the poverty line, with monthly earnings of less than BDT 50,000, as per the data from the Bangladesh Bureau of Statistics. This financial strain is further compounded by environmental issues such as saltwater intrusion and cyclones that pose potential threats. The socio-economic of Mongla is also deeply influenced by gender dynamics. Women, often playing key roles in their families, navigate a complex interplay of traditional responsibilities and the evolving demands of Mongla's changing economy. Their contributions, both in formal and informal sectors, still need to be recognized. This situation underscores a persistent issue of gender inequality, with women facing limited access to resources and decision-making opportunities.

Adding to the socio-economic of Mongla is the rapid urbanization, driven in part by climate-induced migration. Migrants, seeking refuge from areas more severely impacted by climate change, contribute to the city's demographic diversity but also strain its infrastructure and services. This underscores the critical need for well-thought-out urban planning and effective integration strategies for these migrants. Local initiatives, including community-led adaptation and locally-led adaptation strategies, are key to mitigating the adverse impacts of these challenges. These grassroots efforts demonstrate the community's determination to find sustainable solutions, showcasing their adaptability and resilience. Adding a quantitative perspective to these challenges, CRMFT household immersion data reveals that the average household size in Mongla is approximately 3.74 individuals. Additionally, each community has an average

of 183.64 dependent members, including those aged 0 to 14 and over 65. Notably, about 13.41% of households in Mongla are headed by women, which speaks to the significant role women play in the community's socio-economic structure. This data underscores the diverse needs of Mongla's population and highlights the importance of inclusive and adaptive strategies that cater to the varied demographic segments of the city.

Mental Health Concerns and Environmental Stressors: Mongla, a city often affected by climate change, faces significant mental health challenges in addition to physical ones. The socio-economic stresses, compounded by recurrent climate-related disasters such as cyclones, floods, and waterlogging, are taking a toll on the mental well-being of its residents. The constant uncertainty and instability in this environment are leading to increased anxiety and stress-related disorders among the local population. A pilot study conducted by the SAJIDA Foundation in Gabura and Mongla, two areas frequently exposed to natural disasters in Bangladesh's southwestern coastal belt, sheds light on the critical intersection of mental health and climate change. The results were alarming: 88% of respondents acknowledged the negative impact of disasters and climate change on mental health. This is a stark indicator of the urgent need for mental health support systems tailored to address these specific challenges.

The use of the General Health Questionnaire-12 (GHQ-12) in the study revealed that 37.29% of the 1,212 respondents displayed mental health concerns that warrant further attention. This high prevalence rate underscores the pressing need for mental health interventions in the community.

However, addressing these mental health challenges is hampered by a lack of awareness and a shortage of mental health professionals in the area. Alarmingly, the study found that 9.57% of respondents demonstrated suicidal tendencies, with a significantly higher incidence among women (83.6%). This underscores the critical need for gender-sensitive mental health interventions and support system

Adding to the mental health burden are environmental stressors, as evidenced by CRMFT household immersion data. The data indicates that, on average, 7.72% of households in Mongla's communities are affected by waterlogging issues. Furthermore, these communities face water scarcity for approximately 5.32 months each year. These environmental challenges not only impact the physical living conditions but also contribute to the psychological stress experienced by the residents.

“I experience continuous mental stress regarding both my living situation and employment. The place I currently reside carries the constant threat of eviction. Simultaneously, my financial situation is precarious, requiring me to live day-to-day. Missing a day of work results in going without food. The ongoing uncertainty about sustenance is a shared concern among me and others in my vicinity.

-Jahanara Begum, Ratarati Colony

Infrastructure of Mongla

Mongla Municipality is the main town as well as the key business center of the district. The citizens who are living in the municipality areas have some needs of space for different infrastructural development. In one hand, the people of the municipality areas have been increasing day by day, thus increasing more demand for essential infrastructure. The port has 11 jetties and 8 warehouses. It uses 12 swinging moorings in deeper sections in the river. The port is connected by the Bangladesh Railway to the Khulna Metropolitan Area.

Water Infrastructure and WASH Facilities: Mongla's water infrastructure is confronted with significant challenges due to salinity intrusion, particularly affecting its groundwater sources. This intrusion renders the groundwater largely unsuitable for drinking purposes. The Mongla municipality has initiated a response by establishing a Water Treatment Plant that utilizes harvested rainwater. Despite these efforts, the current system's reach is limited to only about 50% of the city's population, highlighting a critical gap in the water supply coverage (ADO, 2014).

Compounding this issue is the city's reliance on a singular water supply source without a backup system, which poses a significant risk to water security. To address this, around 25% of households in Mongla have adopted rainwater harvesting practices. The municipality is also taking proactive steps to expand these practices on a larger scale, aiming to close the gap in potable water demand (ADO, 2014). In terms of WASH (Water, Sanitation, and Hygiene) facilities, there is a noticeable disparity in Mongla. While some areas are well-equipped with modern facilities, others still need to be served. This uneven distribution of WASH facilities necessitates a uniform approach to development across all communities within Mongla. The ongoing initiatives by the Mongla municipality, such as the water treatment plant and rainwater harvesting projects, represent positive steps towards tackling these water-related challenges. However, there is a need for broader and more inclusive strategies to ensure equitable access to safe drinking water and adequate sanitation facilities for all residents. Such improvements are essential for enhancing the overall health, hygiene, and quality of life, particularly in light of the increasing impacts of climate change (ADO, 2014).

"We manage two ponds on an 84-acre plot to treat and distribute water to 2595 households and 110 commercial buildings twice daily. Our daily water supply amounts to approximately 25 lakh liters. However, the water demand from the Mongla Port Municipality is higher, standing at 30 lakh liters per day.

Roads and Transportation: Mongla's transportation network, a necessary component of its economic infrastructure, is significantly influenced by its geographical positioning and climate-related challenges. The roadways and waterways, essential for the functioning of Mongla's port, face frequent disruptions due to flooding and coastal erosion. This situation underscores the need for ongoing maintenance and forward-looking planning to ensure resilient and sustainable transportation systems (Area Development Organization [ADO], 2014). The city is linked to nearby districts through several key roads, including the 34 km Bagerhat-Rampal-Mongla Road and the 26 km Morelganj (CARE Bazar)-Mongla Road. Additionally, Mongla is connected to Khulna city via a two-lane roadway. While most of this road is in good condition, the portion near the port entrance requires resurfacing. Furthermore, this road intersects with another road leading to the proposed Padma Bridge through Mawa, which is relatively new and well-maintained. The National Highway N7 also plays a vital role, connecting the Daulatdia Ferry Terminal (Dhaka) directly to the Port of Mongla (Bangladesh Export Processing Zones Authority [BEZA], 2015).

Maintenance responsibility for Mongla's road network is shared between the Roads and Highway Department, the Municipality, and the Local Government Engineering Department (LGED). The area features 65 bridges made of various materials, including iron, concrete, and wood. However, sluice gates are notably absent. The infrastructure also includes 173 culverts that facilitate the flow of canal water underneath the roads. The total length of the 151 earthen, pucca, and semi-pucca roads in the upazila is approximately 551.60 km, highlighting the extent of the transportation infrastructure (ADO, 2014). The existing transportation infrastructure, while substantial, faces significant challenges due to the coastal city's vulnerability to the impacts of climate change. The ongoing efforts by various governmental departments in maintaining and upgrading this infrastructure are crucial for Mongla's economic stability and growth. The strategic development and maintenance of this network are vital not only for the city's current needs but also for its future resilience and sustainability.

Housing and Community Distinction: In Mongla Port Municipality, housing, and community distinctions reflect the diverse challenges and resilience of various communities. The region, home to 42,606 residents across 8,927 households, displays a wide range of living conditions influenced by both environmental factors and resource availability. The housing situation in Mongla is marked by significant disparities. Some communities, like those in the Annio community to Diganta Colony, are indicated by fragile housing conditions, often worsened by environmental threats such as flooding, salinity, cyclones, and erosion. These areas, typically with limited resources, need help to build resilient structures, making them more vulnerable to climate-induced challenges.

Equally, other parts of Mongla, comparable to Narikel Tola, have more stable housing infrastructures. These areas benefit from better resource allocation and infrastructural development, providing greater stability and resilience against environmental changes. This contrast in housing across Mongla's communities underscores the uneven distribution of resources and the varied impact of climate change. Such discrepancies highlight the need for targeted interventions to ensure equitable development and climate resilience in all municipality areas. Further, the demographic data from the Bangladesh Bureau of Statistics (BBS) 2011 population census reveals the population density variations across Mongla's nine wards, spread over 19.40 sq. km. Wards 2 and 5 exhibit the highest and lowest population densities, respectively. This demographic distribution also reflects the socio-economic dynamics within the municipality, influencing how resources are distributed and how communities adapt to environmental stresses (BBS, 2011).

Mongla's infrastructure of its urban requires combined efforts for improvement and adaptation. The existing disparities in housing, the challenges in water and sanitation facilities, and the need for resilient roads demand strategic planning and investment. As Mongla grows, addressing these infrastructural challenges will be key to ensuring the city's sustainability and resilience, particularly in the face of climate change and its socio-economic impacts.

Data Insights from Mongla Communities

Recent data from the Mongla shows light on the current state of infrastructure and its socio-economic implications:

Approximately **48.12%** of households have access to mobile banking, indicating a moderate level of financial inclusion and digital connectivity.

COVID-19 has impacted the community variably, with **12.25%** reporting sickness, **19.96%** facing job loss, and **10.56%** not affected significantly.

The average coverage of safety net programs stands at **27.92%,** highlighting the need for more extensive social protection measures.

Livelihood in Mongla

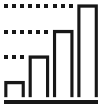
Mongla, with a population of around 1,50,000, is experiencing traditional livelihoods and the pressing challenges of climate change. The economic and demographic graphs of Mongla are diverse, with the population almost evenly split between males (48.87%) and females (51.04%), spread across about 3,688 households. The livelihood patterns are deeply connected to the environment and nature. Mongla's economy traditionally spins around port-related activities, agriculture, fishing, and various small-scale industries. This economic activity is reflective of its demographic distribution and is now increasingly influenced by the impacts of climate change.

Livelihood and Climate Change: Livelihoods in Mongla, deeply intertwined with the environment, face significant challenges due to climate change. The local economy, largely dependent on natural resources such as fishing and agriculture, is increasingly at risk as environmental conditions shift. Rising sea levels, increased soil and water salinity, and more frequent cyclones are threatening these traditional livelihoods.

For example, the fishing community, a vital sector of Mongla's economy, has been hit hard. Mr. Benzir Khan, a local fisherman, reports a noticeable decline in fish stocks attributed to changes in water temperature and salinity. This decline has not only reduced his income

but also increased food insecurity for many fishermen and their families. Khan, with 22 years in the industry, experienced such severe losses that he had to sell his fishing trawlers and lay off his employees. He narrates, “I lost everything. My only source of income was fishing for 22 years. I had two trawlers and 18 employees. Now I have nothing,” underscoring the direct impact of environmental changes on livelihoods (“Climate-Resilient Mongla Offers New Life to Thousands of Internally Displaced,” The Daily Star, 2022). The Mongla Export Processing Zone (EPZ) also reflects shifts in employment and economic opportunities. The number of workers in the EPZ has increased significantly, from about 2,600 in 2018 to around 9,000 in recent years. This growth in employment in the industrial sector could be seen as a response to the diminishing opportunities in more traditional, climate-sensitive sectors like fishing and agriculture. These changes in Mongla’s economic landscape highlight the need for diversified livelihood strategies to build resilience against climate change. The community’s ability to adapt and find alternative sources of income in the face of environmental challenges is crucial for sustainable development and ensuring the well-being of its residents.

Financial Inclusion and Safety Nets: The integration of modern financial systems is evident, with approximately 48.12% of households having access to mobile banking. This digital connectivity is especially beneficial in mitigating the economic impacts of climate change and the pandemic. Further, about 27.92% of Mongla’s population is covered by various safety nets, providing essential support during economic downturns. In Mongla, the occupational landscape is diverse. According to a survey by the Livable Regional Cities in Bangladesh Project (2020), 31% of the population are small business owners, a significant portion reflecting the entrepreneurial spirit of the city. Housewives constitute 23%, highlighting the role of women in managing households. Government employees make up 12%, followed closely by those in non-governmental jobs at 11%. Retirees account for 8%, while the unemployed represent 7% of the population. Day laborers, an important segment in the informal economy, comprise 6%. The remaining 2% includes students and individuals engaged in shrimp farming and fishing, sectors that are integral to the local economy.



Monthly Income Ranges: The financial landscape of Mongla is further elucidated by the income distribution among its residents. The majority, 29%, earn between 5,000 and 10,000 BDT monthly, indicating a significant portion of the population in the lower income bracket. Another 28% earn between 11,000-15,000 BDT. A smaller proportion, 18%, have incomes ranging from 16,000-30,000 BDT, while 11% make less than 5,000 BDT. The higher income groups,

earning 31,000-50,000 BDT and above 50,000 BDT, constitute 11% and 3% of the population, respectively.

These statistics reveal the varied economic realities of Mongla's residents. The presence of a substantial number of small business owners indicates a dynamic local economy, while the significant proportion of lower-income earners underscores the challenges faced by many in the community. Financial inclusion through mobile banking and the coverage of safety nets plays crucial roles in providing stability and resilience in the face of economic and environmental challenges. This data is essential for understanding the socio-economic dynamics of Mongla and for formulating policies and interventions that address the needs of its diverse population.

Community Participation in Various Programs

Microfinance **(2.94%)**, HNPP **(0.18%)**, SDP **(0.09%)**, and UPG **(0.09%)** reflects a proactive approach towards improving their socio-economic conditions. These programs, albeit with low participation rates, indicate an awareness and willingness to engage in communal upliftment initiatives.

Migration Dynamics in Mongla

Bangladesh is seen as particularly vulnerable to climate migration, with an expectation of nearly 20 million internal climate migrants by 2050 (World Bank 2021). Mongla enhanced cultural and economic significance for migration dynamics that shape its socio-economic structure. Although this coastal town faces significant climate change impacts, it is also positioned as Bangladesh's second-largest seaport. It is one of eight operational Export Processing Zones (EPZ) under the Bangladesh Export Processing Zones Authority (BEPZA). Alongside this, there has been an improvement of transport communication, including the construction of Padma Bridge and railways connecting Mongla Port with Dhaka and Khulna. Over the past decade, this has helped the town transform into a thriving city that welcomes migrants who seek socio-economic advancements through new beginnings in urban areas. Due to this, Mongla can be seen as a smaller urban centre with the capacity to expand through more available job opportunities and the ability to sustain the rapid expansion of the workforce. (Guardian, 2022)

Mongla's population of approximately 13,870 individuals comprises a near-equal gender distribution, with around 48.87% male and 51.04% female residents. This is a clear indication of the town's migration dynamics, as gender often influences migration decisions and opportunities.

The COVID-19 pandemic has been affecting health and livelihoods and has also affected the migration dynamics. About 12.25% of the population reported getting sick, while 19.96% experienced job loss. However, 10.56% reported no effect from the pandemic, indicating variable levels of resilience within the community. Amongst this, during the COVID-19 lockdowns, Bangladesh faced rapid economic and physical shutdowns, resulting in a severe impact on the financial conditions of the urban poor. Hawkers, street vendors, public transport workers and other such day-to-day workers reported huge losses as they faced a 50-70 per cent decline in income. These workers were then forced to return to their native villages as they were unable to meet their daily needs. (TBS, 2020)

The average safety net coverage and the prevalence of mobile banking (48.12%) in households indicate a community adapting to modern financial systems, which could influence migration patterns as well. Access to mobile banking, for instance, might support migrant families in maintaining financial stability and connectivity.

“I previously resided in Morolganj but lost my land due to river erosion. There, I used to work on others’ cropland as a day labourer. However, excess salt had a toll on the land as growing crops in them became ever so hard. Consequently, I had to relocate to Mongla, driven by my family’s needs.

-Rahim Miya, Ratarati Colony

Recent data reveals significant insights:

- Total Households: **Approximately 3,688**
- Average Safety Net Coverage: **Approximately 27.92%**
- Average Percentage of Households with Mobile Banking: 48.12%
- Community Membership in various programs like HNPP, Microfinance, SDP, and UPG, although low, reflects the community’s engagement in socio-economic initiatives.

Mongla as a Climate Resilient Migrant Friendly Town (CRMFT)

Mongla's selection as a pilot for the Climate Resilient Migrant Friendly Town (CRMFT) initiative is a strategic response to its unique combination of economic potential and vulnerability to climate change. The increased economic activity in the port and the EPZ has attracted a surge of migrant workers. Paired with the increasing environmental risks, these aspects of economic opportunity make Mongla a compelling site for implementing the CRMFT model, aiming to conform economic growth with climate resilience.

Dr. Saleemul Huq underscores Mongla's suitability as a learning ground for integrating climate resilience into urban planning. His support highlights the broader applicability of the CRMFT model for similar coastal towns (Huq, 2023). As most rural-to-urban migrants choose megacities like Dhaka as their destination, there is a growing burden in these cities, and it is not possible for them to continue to absorb so many climate-induced migrants. "A secondary climate-resilient and migrant-friendly cities and towns can be a solution for millions of migrants," he stated. (Dhaka Tribune, 2023) He concluded that while Bangladesh needed to think about how to cope with the influx of millions of climate migrants, there was an opportunity for it to be turned into a solution to set an example for the global community as a whole. That is of course, if the issue at hand was strategically addressed, therefore making well-facilitated and planned migration a good example of transformative adaptation. (Daily Star, 2018)

The CRMFT model in Mongla aims to strike a balance between economic development, particularly through port activities, and environmental sustainability. This initiative seeks to ensure that the migrants find a resilient and inclusive urban environment in Mongla, which involves promoting sustainable infrastructure and industrial practices to secure the town's long-term economic and ecological viability (Khan & Iqbal, 2022; Ahmed et al., 2021). As the Mongla port municipality grows, the Mayor of Mongla recognizes the town's economic drive despite the susceptibility to environmental risks. He advocates for the CRMFT model as a pathway to gain Mongla's economic strengths while fortifying its defense against climate threats. Inclusivity and community engagement are important for implementing the CRMFT model in Mongla Port municipality. It ensures that plans and actions reflect the needs of vulnerable groups, including climate migrants and local residents (Chowdhury & Rahman, 2022).

Climate Resilient Migrant Friendly Town (CRMFT) as a Collaborative Approach

The Climate Resilient Migrant Friendly Town (CRMFT) model in Mongla involves the active engagement of various stakeholders, each contributing their unique perspectives and resources. This collaborative approach underpins the model's effectiveness.

Local government authorities, including the Mayor, Councilors, and the Upazila Nirbahi Officer (UNO), play crucial roles in coordinating the CRMFT initiatives, ensuring they align with Mongla's broader urban development plans. Their policy support and governance expertise are vital for implementing effective climate resilience strategies. Mongla Port Authorities also contribute significantly, offering insights into the economic and infrastructural aspects crucial for the town's resilience. Their involvement ensures that CRMFT initiatives not only bolster the port's ability to withstand climate challenges but also benefit the broader community.

Community leaders from different communities and residents of Mongla are integral to the CRMFT model. Their local knowledge and firsthand experiences guide the development of practical and relevant climate resilience strategies. This community-centric approach ensures that the solutions developed are tailored to the specific needs of Mongla's diverse population. Non-governmental organizations (NGOs) and international non-governmental organizations (INGOs) provide technical expertise, funding, and global best practices. Their participation ensures the CRMFT initiatives are both innovative and grounded in proven strategies. Public-private partnerships are also encouraged within the CRMFT framework, combining the efficiency and innovation of the private sector with the regulatory and policy frameworks of the public sector. These partnerships are key in developing sustainable infrastructure and services that cater to the needs of both migrants and local residents, fostering a resilient and inclusive urban environment in Mongla.

The Incorporation of LLA in the CRMFT Process

The repercussions of climate change often exclude those who are most impacted and most vulnerable from participating in decision-making processes. Top-down techniques often include the involvement of central government entities or influential financiers, therefore marginalizing or impeding small groups from obtaining financial resources. The LLA approach empowers local actors by granting them more authority and resources to engage in climate adaptation initiatives. Consequently, this strategy results in the development of more efficient and fair policies, ultimately promoting climate justice. Therefore, local community leadership and ownership are just as important as creating infrastructure that can tolerate cyclones or tidal surges when it comes to support the resilience of a migrant-friendly town. By adopting LLA, Mongla can become a model for climate resilience and social inclusion, setting an example for other vulnerable coastal areas and fostering a more equitable and prosperous future for all its residents, including those affected by climate-induced migration.

Community Engagement

In the context of local-led adaptation, community engagement leads the way to sustainable, locally-led solutions, empowering communities to take charge of their destinies. In the face of the ever-increasing complexities shaping our world, community engagement is no more just an option; it is the very essence of progress, driving us toward a future where communities don't just bear the burden of change but actively shape it. From the very beginning, the facilitation team started engaging with the community through transect walks, communication, and immersion visits. The facilitation team was often accompanied by local leaders and government officers which helped them in appearing more genuine and reliable to the community people. Weeks were spent in building rapport with the locals, and once that trust was earned, the goals, objectives, and potential benefits of the project were shared with them. Gradually, the team was successful in piquing the interest of the local residents and more and more people wanted to be involved in the project activities. The team did not stop at merely involving the community people in the decision-making processes; rather, continuous training and workshops were arranged so that the people of the community would be equipped with the capacity to identify the solutions to the hazards posed by the climate crisis. From the best-established practices, approaches were hand-picked by the team which would result in the highest community mobilization, including social mapping, hazard profiling, vulnerability assessments, household-level censuses, and the continuous validation of collected data through focus group discussions.

Basic Needs of the Community

For the residents of Mongla, climate change is not an abstract concept but a day-to-day reality. Especially, the people living in the informal settlements of Mongla are being driven deeper into the clutches of poverty as they bear the brunt of frequent flash floods, menacing cyclones, and the gradual salinization of groundwater. In these communities, the basic needs of people, the blocks of their human dignity, are compromised. Food and water insecurity haunt their daily lives, following the contamination of natural water sources by floods and salinity intrusion. As diseases emerge in the wake of disasters and access to medical care becomes more and more constrained, people's health is seriously threatened. With the loss of livelihoods and the means of subsistence, people are pushed further to the periphery of societies, and inequalities and gaps increase. In the face of climate change, these communities are not only deprived of their basic rights; their very existence is endangered. Their stories are a reminder of the urgent need for meaningful climate action and social justice, and it is precisely where the CRMFT project steps in with its commitment to empowering the local communities to lead innovative solutions for sustainable and climate-resilient planning.

Recognition of Challenges Faced by Informal Settlements

Naturally, active participation from the community members would be only possible if their pressing needs were given center stage. Climate concerns among the community people mainly revolved around salinity intrusion, the protection of housing and water sources, and the preservation of natural resources to sustain their livelihoods. The social fabric of these communities, on the other hand, was straining, as inequalities increased, poverty deepened, and access to education and healthcare became restricted for particular groups. Additionally, the overarching challenges of urban informal settlements persisted here, including inadequate infrastructure, lack of legal recognition, and the threat of forced eviction. Informal settlers faced harsh environmental conditions, enduring scorching heat and scarce rainfall in summers, while being exposed to heavy downpours and waterlogging during the rainy season. These factors collectively resulted in substandard living conditions, compromising the community's well-being and quality of life. Through community-led workshops and focus group discussions arranged under the CRMFT project, residents from each community found a platform to share their firsthand experiences on how climate change was affecting their lives. Their accounts provided a complete picture of the issues and opportunities confronting each community. With these insights as guidelines, local experts and community representatives joined hands to design adaptation strategies tailored to the needs and strengths of each community. The strategies were grounded in the practical realities and resources available within the communities themselves.

Ensuring Ownership and Sustainability

There is no doubt that the long-term success of any project is measured by its ability to extend benefits far beyond its completion. However, when working with underprivileged communities, practitioners are often plagued by the uncertainty regarding what happens once the funding dries up. The CRMFT

project recognized this challenge from the very start and sought to address it by empowering community leadership and ownership. The sustainability mechanism of this project involved participation from all sectors - local government figures, political and community leaders, and most importantly, the community members themselves. True ownership at every level of the community could only be achieved if these communities were granted the space and autonomy to develop, plan, and drive interventions that were tailored to their unique needs. That's precisely what this project aimed to do. Instead of imposing external control, it took on the role of facilitation and support, placing the community members in charge of all project activities. As the community members were given the freedom to understand and evaluate the value of the project activities, they were gradually inspired to take ownership and sustain the initiative.

Climate Resilient Migrant Friendly Town Process

The CRMFT initiative set forward an ambitious goal to promote Mongla, a coastal city in Bangladesh, to the status of a secondary city through a well-constructed adaptation plan. Positioned at the intersection of economic promise and environmental challenges, Mongla struggles with difficult issues such as rising sea levels and frequent cyclones. To address these challenges, a Local Adaptation Center (LAC) was established, acting as the foundation for strategic collaboration, planning, and implementation. This center brought together a diverse group of stakeholders, from the city's mayor and municipal team to specialized committees, all committed to supporting local people to develop adaptation strategies that are factual evidence of Mongla's unique needs. A thorough approach was used to pinpoint climate-sensitive migrant areas in the city using community surveys, in-depth Community Climate vulnerability assessments, and group discussions. The ultimate aim was to transform Mongla into a model of building a Climate-Resilient Migrant Friendly Town, offering a plan for other towns facing similar challenges.

Step 1: Identification of a Suitable City/Town

At the start of the CRMFT initiative, the BRAC facilitation team faced an important task: to identify a city that could become a Climate Resilient Migrant Friendly Town (CRMFT). These secondary towns are essential in offering viable alternatives to major urban centers, thereby encouraging migration towards more sustainable and livable environments. The team sought to identify a secondary town with the potential to become migrant-friendly and to offer attractive economic prospects and job opportunities for both the existing population and incoming climate migrants.

Justification for Mongla

Mongla was selected as a suitable city because of its unique combination of vulnerability to climate changes and potential for becoming more resilient. This makes it a good fit for the project's goals, which include making communities better prepared for climate change.

Selection Criteria and Assessment

The Implementation Team chose Mongla based on a range of factors, including how much it's affected by climate change and the state of its local economy. This careful look helps make sure the team is aware of both the challenges and opportunities in Mongla. To gather more information, the team also visited the area on a Transect walk and talked to local people.

The process of identifying a suitable town involves the following:

1. **Examining** existing data on climate change impacts and vulnerabilities.

2. **Analyzing** local economic conditions.

3. **Investigating** migration patterns.

4. **Conducting** field visits.

5. **Consulting** with local governments and communities.

6. **Collaborating** with climate adaptation and migration experts and researchers.

The aim is to find towns that are both vulnerable to climate change and have the economic potential to become climate resilient and migrant-friendly.

Step 2: Establishment of Local Adaptation Centre

One of the major milestones of the project was the establishment of the Local Adaptation Centre (LAC) in Mongla. The LAC was not just an initiative; it was a physical location where key discussions and decisions took place. Supported by the Mayor and municipal officials, the LAC aims to become an enduring part of the local government body, both during and after the project's timeline

The local Adaptation Centre has opened doors of communication between the municipality and the community. Previously, we did not have any information or documentation of these communities. But now we have a complete list of these communities. We know each community's climate vulnerability and what they need to avert them. Having all-encompassing information about these settlements has been a great help for the municipality as we can easily insert these plans into the municipality master plan.

Heroic Freedom Fighter Sheikh Abdur Rahman,
Mayor Mongla Port Municipality

Central Roles of LAC

The LAC serves as the center for all climate adaptation activities in Mongla. As a dedicated physical space, it provides a centralized hub for planning, decision-making, and strategy execution aimed at making the community and the town resilient to climate change. It's a place where all important discussions and decisions were made ensuring a coordinated and effective approach to climate resilience.

Key Participants and Roles

Mayor and Municipal Team: The Mayor of Mongla, along with the municipal team, has been at the forefront of the LAC's operations. Their active participation and collaboration with ward councilors in decision-making processes have ensured smooth operations under the project.

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Mayor Mongla Port Municipality

Md. Kabir Sheikh,
Councillor, Ward 01

H. M. Shariful Islam,
Councillor, Ward 02

Md. Bahadur Miya,
Councillor, Ward 03

Jahanara Hossain,
Councillor, Ward 01, 02, 03

Shafiqur Rahman Khan,
Councillor, Ward 04

Shariful Islam,
Councillor, Ward 05

Md. Al Amin Gazi,
Councillor, Ward 06

Mir Johra,
Councillor, Ward 04, 05, 06

Humayun Hamid Nasir, Ward 07

Md. Sarwoar Hossain, Ward 08

Md. Majnu Gazi,
Councillor, Ward 09

Shiyuli Aktar,
Councillor, Ward 10

Steering Committee: The Steering Committee played a key role in guiding the CMRFT process in Mongla. The Committee comprises four members from GCA, BRAC, ICCCAD, and SPARC. Throughout the process, the committee provided strategic oversight and direction, ensuring that the initiatives undertaken by the Local Adaptation Centre (LAC) were in line with broader climate resilience goals. They actively engaged in the decision-making process, offering valuable guidance to steer the process toward its objectives.

Two visits to Mongla so far have allowed them to assess progress, offer technical expertise, and extend support to the LAC, contributing to the advancement of the initiative's mission to create a climate-resilient and migrant-friendly town. The Steering Committee's collaborative efforts are integral to the successful execution of the CRMFT process in Mongla, benefiting both the local community and potential migrants seeking better livelihood opportunities in the town.

Advisory Committee: The Advisory Committee plays a pivotal role in the initiative in Mongla. It consists of 19 members representing diverse stakeholders, including Upazila government officials, civil society representatives, school teachers, and journalists, from Mongla. Each member brings specialized expertise to the committee. The Committee offers guidance, technical expertise, and local knowledge to steer the CRMFT initiative toward its set objectives. Their collective efforts play a vital role in ensuring the successful establishment of a climate-resilient and migrant-friendly town in Mongla, creating a promising future for its residents and newcomers alike.

F**acilitation Team:** The Facilitation Team, also known as the BRAC field team, plays a significant role in the Climate Resilient Migrant Friendly Town (CRMFT) initiative. They are primarily involved in resource mobilization and community engagement, ensuring the project's goals are achieved effectively. They provide consistent support to the CAC members, assisting them in their responsibilities and making sure their efforts align with the broader objectives of the initiative. Their involvement is essential for the smooth operation of the overall project, addressing challenges promptly and keeping the community engaged and informed.

The Facilitation Team is responsible for carrying out the strategies and plans set by the Local Adaptation Centre (LAC). Their role is vital in ensuring the successful implementation of the CRMFT initiative.

Md. Tareq Hasan

Md. Rafiqul Islam

Md. Abu Taher

Manjila Khatun Lipi

Rumana Jesmin

Shabuj Das

Government's Role in Sustaining LAC

The long-term sustainability of the LAC is assured by its integration into the local government structure. This institutionalization ensures that the center will continue to function and receive support even after the project concludes, thereby maintaining a lasting focus on climate resilience.

The establishment of the Local Adaptation Centre (LAC) signifies a substantial advancement in Mongla's efforts for climate resilience. By centralizing key discussions and decisions within the LAC, the project ensures a coordinated and community-focused approach to climate adaptation, benefiting both current residents and future migrants.

The LAC, as a coordination center, provides the venue and infrastructure for various activities essential to the CRMFT initiative. While the LAC itself doesn't execute these activities, it offers the space where the Mayor, his team, the Steering Committee, and the Advisory Committee facilitate and oversee them. The activities facilitated at the LAC in Mongla include:

- **Coordination and Collaboration:** The LAC serves as a center for cooperation, uniting a variety of stakeholders, including governmental agencies, non-governmental organizations, community-based groups, and educational institutions. This helps ensure that initiatives are integrated and mutually reinforced, optimizing the use of resources and enhancing the overall efficacy of the approach.
- **Climate Adaptation Planning:** In the Local Adaptation Centre (LAC), community members, including representatives from diverse local communities and Advisory Committee members, come together. This collaborative environment is needed for developing comprehensive climate adaptation plans. These plans, which include the Local Climate Adaptation Plans (LCAPs), Ward Climate Adaptation Plans (WCAPs), and the Town Climate Adaptation Plan (TCAP), are drafted to reflect the specific conditions and needs of Mongla. By integrating the voices of various community stakeholders and Advisory Committee experts, the LAC ensures that each plan is deeply rooted in local insights, fostering a shared commitment to effective climate resilience strategies.
- **Capacity Building:** In order to expand the knowledge and skills of local communities, government officials, and stakeholders, the LAC offers workshops, training sessions, and awareness campaigns. It has thus contributed to a community that is well-prepared and equipped to deal with climate-induced challenges.
- **Data Collection and Analysis:** The LAC has become a hub for a systematic process for gathering and analyzing relevant climate change data, such as impacts, vulnerabilities, and adaptation measures.
- **Resource Mobilization:** In Mongla, local people proactively identified potential funding sources, including government funds, private sector contributions, NGOs, and international organizations. The LAC, serving as a coordination center, plays a role in facilitating the effective mobilization of these funds, ensuring the continuity and progression of climate adaptation projects in Mongla. This approach aligns with the principles of devolving decision-making to the lowest appropriate level and ensuring transparency and accountability in the funding process.

- **Monitoring and Evaluation:** In Mongla, local people and stakeholders utilize the LAC as a venue to convene and collaborate on a monitoring and evaluation framework for assessing the progress and effectiveness of climate adaptation plans. While the LAC itself doesn't directly oversee these processes, it provides the space and resources for local experts and stakeholders to carry out these assessments. Through this collaborative approach, areas for improvement can be identified, necessary adjustments can be made, and the initiatives can be steered toward achieving their objectives. This ensures that the adaptation plans are both locally-led and responsive to the unique needs of Mongla.

- **Community Engagement:** The LAC stands as a centre for community interactions in Mongla, encouraging active participation and feedback from local residents. Its central role has been instrumental in building trust, promoting a sense of community ownership, and ensuring the sustained success of the climate resilience efforts.

Step 3: Identifying Vulnerable Hotspots in Mongla

A comprehensive process was followed to identify hotspots in the city, encompassing the following elements:

Settlement Identification

In Mongla, the initial phase of identifying the most vulnerable hotspots involved a detailed settlement profiling process. This was important in understanding the varied shades of each community's exposure to climate change.

- **Transact Walking and Initial Assessment:** The process began with extensive transact walks in all wards, covering the expanse of Mongla. This initial phase was about observing, interacting, and understanding the dynamics of informal settlements. A total of 56 settlements were initially identified.

- **Criteria for Vulnerability Assessment:** To ensure a focused approach, specific criteria were established. These included factors like land tenure security, which reflects the stability of communities in their current locations, and water security, indicating communities' access to safe and reliable water sources.

- **Consultation with Community and Municipal Authorities:** The initial findings from the transect walks were across Mongla with community feedback and insights from municipal authorities. This approach ensured that the list of settlements was both accurate and reflective of ground realities.

Focused Group Discussions and Narrowing Down

- **Conducting FGDs in 36 Settlements:** Based on the refined criteria, 36 settlements were identified for further investigation. Focused Group Discussions (FGDs) were conducted in these communities. These FGDs served as platforms for in-depth discussions on various community-specific issues, ranging from experiences with climate-induced hazards to socio-economic challenges.
- **Key Issues Explored in FGDs:** The discussions aimed at understanding the lived experiences of community members. Topics included the frequency and impact of climate hazards, access to healthcare, education, and livelihood opportunities, and the general state of community infrastructure.

Application of IPCC Vulnerability Index and Final Selection

- **Utilizing the IPCC vulnerability Index:** The IPCC vulnerability index was used to quantify and categorize the vulnerabilities. This index [(Vulnerability = Exposure x Sensitivity) – Adaptive Capability] helped in systematically assessing the degree of risk each community faced, considering various environmental, social, and economic indicators.
- **Final Selection of 20 Most Vulnerable Areas:** The IPCC index led to the identification of the top 20 most vulnerable settlements. These were communities facing the highest risk and, therefore, requiring immediate and targeted intervention. After that this data is validate through the municipality & LAC advisory committee. So that this process can be intensive.

Comprehensive Household Enumeration

- **Development of a Detailed Questionnaire:** A comprehensive questionnaire was developed to conduct what was effectively a census in these settlements. It covered a wide range of topics including, but not limited to, demographic information, impacts of climate change, access to services, and socio-economic conditions.
- **Training of Community Mobilizers:** The community mobilizers experienced training, not just in the technical aspects of data collection but also in engaging sensitively and effectively with community members.
- **Hand-to-Hand Data Collection:** This approach involved personal interaction and the collection of data through direct engagement with individuals in their communities. This method not only ensured the accuracy and reliability of the data but also allowed for a more personalized and engaging experience for the community members involved.

Settlement Profiling

After identification of the 20 most vulnerable areas and complete the details survey then 20 settlement profiling done. In this process the data triangulation was done like FGD, survey and immersion data.

Step 4: People's Adaptation Plan

4.1 People's Adaptation Plan in Mongla

In Mongla, the adoption of the People's Adaptation Plan, comprising the Local Climate Adaptation Plans (LCAP), Ward Climate Adaptation Plans (WCAP), and Town Climate Adaptation Plan (TCAP), is a reflection of the commitment to Locally Led Adaptation (LLA). This three-step approach is designed to ensure that climate resilience strategies are not just top-down interventions but are grounded in the realities, needs, and aspirations of the local communities.

Why a Three-Step Approach?

From Local to Broader Scale: The progression from LCAP to WCAP, and ultimately to TCAP, represents a scaling of efforts from micro to macro levels. This approach allows for addressing specific local issues in LCAPs, considering broader ward-level dynamics in WCAPs, and integrating these insights into a comprehensive town-wide strategy in TCAP.

- **Inclusive and Participatory Planning:** Each step involves active participation from different community groups, ensuring inclusivity. The LCAP focuses on smaller community units, the WCAP broadens the scope to ward levels, and the TCAP consolidates these inputs for town-wide strategies. This tiered approach ensures that diverse perspectives and unique challenges of various community segments are considered.
- **Empowerment through Capacity Building:** The three steps are not just about planning; they are also about building the capacity of local communities. By actively engaging them in LCAPs, WCAPs, and TCAPs, the approach empowers communities, enabling them to lead their adaptation efforts. This is crucial for sustaining these initiatives beyond the project timeline.
- **Alignment with LLA Principles:** The approach aligns with LLA principles, which advocate for putting the control of adaptation strategies in the hands of local communities. By progressively building from LCAPs to TCAPs, the process respects and utilizes local knowledge and practices, ensuring that adaptation measures are not only effective but also culturally and contextually relevant.
- **The Importance of People's Adaptation Plan:** The People's Adaptation Plan marks a significant shift in how we approach the issue of climate resilience. It is not simply about developing plans but about changing the narrative of climate adaptation to one that is locally-led, inclusive, and sustainable. It recognizes that the people of Mongla are not just passive recipients of aid but are active agents of change, capable of shaping their resilient future. This approach is important in promoting ownership, ensuring long-term sustainability, and truly embodying the spirit of LLA.

4.2 Formulation of Local Climate Adaptation Plans

In the previous stage of the CRMFT process, the development of local climate adaptation plans took place. These plans were a reflection of the specific needs of each community within Mongla. The following process was followed to develop these local plans:

4.2.1 Community Profiling

Detailed demographic and socio-economic data were gathered through household emersion. This hands-on approach ensured that the data collection process was locally-driven and reflective of the community's realities. The data covered various aspects such as population age distribution, occupation patterns, household income, education levels, housing structures, and more. This information provided a comprehensive understanding of each community's unique attributes. By understanding these details, the inherent vulnerabilities and resilience capacities concerning climate change impacts in each community were identified. This profiling process offered insights into how different segments within Mongla experienced and reacted to climate-induced challenges.

4.2.2 Training Module Development

As a technical partner, the ICCCAD team developed a detailed training module for the facilitation team (BRAC field team). This module contained the basics of climate change, community-based adaptation, locally-led adaptation, and the CRMFT process. The focus was to ensure that the facilitation team was well-versed in these necessary areas to effectively guide the community through the adaptation process.

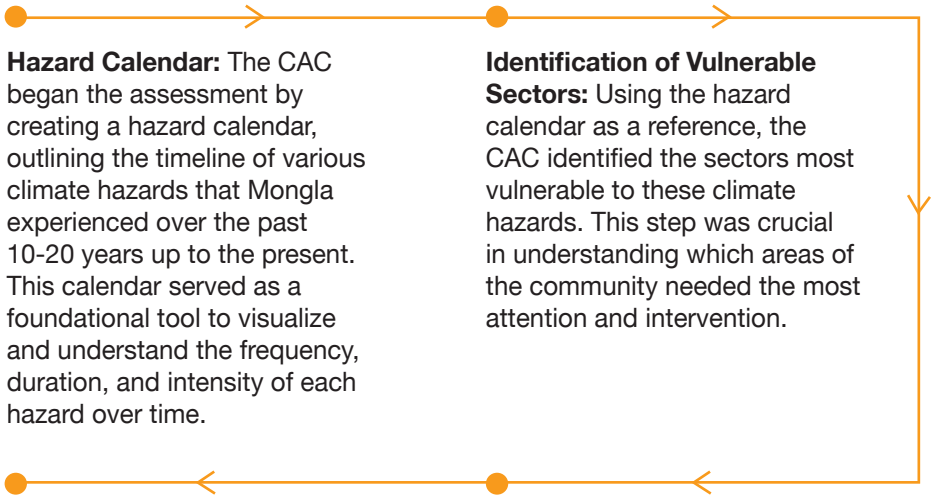
4.2.3 Formation of Community Adaptation Committees (CAC)

To ensure that the adaptation process was truly locally-led, Community Adaptation Committees (CAC) were initiated in each climate-vulnerable area. These committees were formed through community consultations, where local residents nominated and selected their representatives. Comprising local leaders, active community members, and representatives from local stakeholders, the CAC ensured diverse and representative insights. Instead of merely being involved, the CAC took the lead in shaping the direction of the adaptation plans, ensuring they reflected the community's genuine needs and aspirations. While the CAC was instrumental in guiding the formulation of the LCAP, its primary role was to ensure that the community's voice was at the forefront, making the plans more effective and sustainable in the long run.

4.2.4 Community Climate Vulnerability Assessment

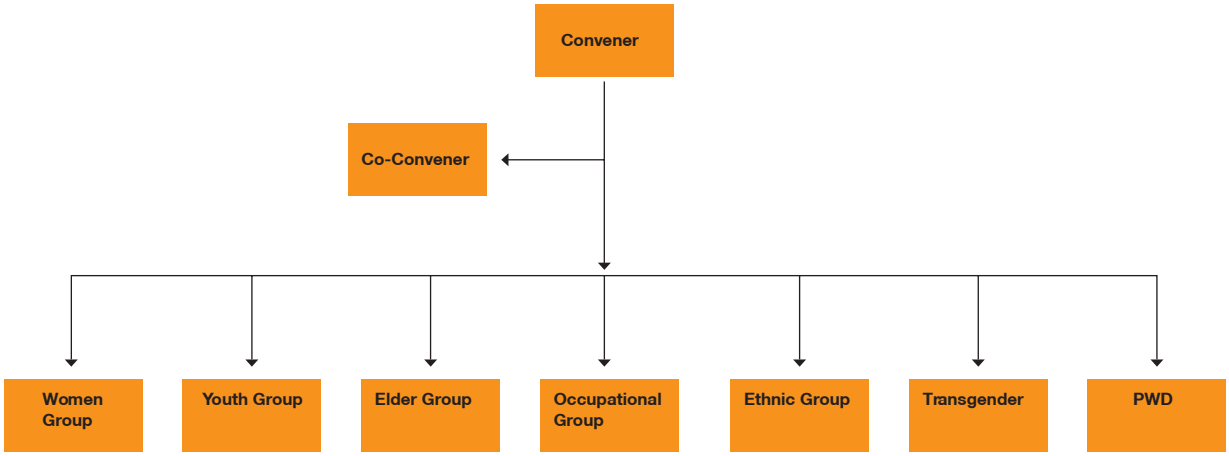
To understand Mongla's climate vulnerabilities comprehensively, the Community Adaptation Committee (CAC) initiated a Community Climate Vulnerability Assessment (CCVA). The CAC, comprising local community members, built upon the demographic and socio-economic profiles previously established, diving deep into the specific climate challenges each community in Mongla faced.

Community Climate Vulnerability Assessment (CCVA) Process:



The CAC, with its foundation in the local community, ensured that the assessment was both accurate and locally relevant. Local experts, community leaders, and other representatives actively participated in the assessment process, providing firsthand insights, sharing experiences, and contributing to data collection. This ensured the assessment reflected the true on-ground realities. The CAC organized workshops, focus group discussions, and community meetings to gather diverse perspectives and insights.

The CCVA, led by the CAC, not only identified vulnerabilities but also suggested potential adaptation solutions tailored to the community's needs. These solutions aimed to address the identified vulnerabilities and strengthen the community's resilience against climate-induced challenges. By having the local community at its core, the CAC ensured that the adaptation strategies developed were both relevant and effective for the people of Mongla.



4.2.5 Impact Analysis and Possible Solutions

With the foundational knowledge from the vulnerability and hazard assessments, the next step in the local climate adaptation plan process was to assess the overarching impact of climate change on each distinct community within Mongla. This analysis considered the collective effects of climate change across every sector of the community. It inquired into the potential current effects of these impacts, from altering livelihoods to affecting health and the general well-being of the residents. Local community members, who were the most aware of the intricacies of their environment and daily life, were at the forefront of this analysis. Through community-led workshops and focus group discussions, residents shared their firsthand experiences and perceptions of climate change impacts. Their insights were instrumental in painting a holistic picture of the challenges and opportunities faced by the community. Then, local experts and community leaders collaborated to identify potential adaptation solutions tailored to the specific needs and strengths of each community. These solutions were not just theoretical but were grounded in the practical realities and resources available within the community. By centering the voices and expertise of the local people, the impact analysis ensured that the proposed adaptation strategies were both relevant and sustainable, setting the stage for a resilient future for Mongla.

4.1.7 Evaluation of Existing Interventions

An important phase in the local climate adaptation planning process was the particular assessment of current measures implemented to address climate vulnerabilities in Mongla. This involved a community-driven review of these initiatives, where local community members, who had firsthand experience with these interventions participated. Through community-led workshops and participatory feedback sessions, residents shared their perspectives on the effectiveness of existing measures. They discussed the existing interventions they had observed, any gaps or challenges they had encountered, and areas where further support might be needed. Local experts, community leaders, and community people involved in these interventions also contributed to this evaluation. Their expertise provided a broader context, helping to understand these measures' scalability, sustainability, and long-term impact.

4.1.8 New Interventions and Adaptation Plan

The next step was to design new, customized intervention strategies based on the comprehensive review of existing interventions and the detailed insights gathered about each community's specific vulnerabilities and adaptation requirements. These strategies were designed to fill the gaps identified in the current efforts and further strengthen the community's resilience against climate change. This stage was characterized by a participatory approach, where local community members were at the forefront of decision-making. Through a series of community-led workshops and focus group discussions, residents of Mongla actively participated in brainstorming sessions, shared their experiences, and provided feedback on proposed interventions. Their insights ensured that the new strategies were effective in addressing climate challenges and aligned with the community's values, traditions, and socio-economic realities.

4.1.9 Detailed Plan for Interventions

After pinpointing the new interventions, an action plan was formulated for the rollout of each strategy. This plan described a clear pathway, specifying the necessary resources, the execution timelines, the entities accountable for each task, and the anticipated results. Local community members actively participated in the planning process through community-led workshops and feedback sessions. Their knowledge and experiences were invaluable in shaping the plan to be most relevant and effective for Mongla's unique context. Community input, local experts, and representatives from each community provided their expertise. Their technical insights, combined with the community's on-ground experiences, ensured a comprehensive and actionable plan.

4.1.10 Monitoring Responsibility and Timeframe

During this phase of the LCAP process, a monitoring framework was set up, anchored in a locally-led approach. The community members of Mongla played a central role in this monitoring process. Through community meetings and participatory workshops, roles were designated, and individuals or local groups were entrusted with specific monitoring tasks. Alongside the community's involvement, local organizations and institutions collaborated to provide technical support and

expertise. They assisted in setting measurable targets and defining clear timelines for each intervention. This collaborative approach ensured that there was shared responsibility and a collective commitment to the project's success.

4.1.11 Validation of Local Adaptation Plan

After explaining the monitoring responsibilities, the draft LCAP was subjected to a thorough validation process, driven primarily by the local community members of Mongla. These community members, being the primary beneficiaries, also helped to validate the LCAP. Local community workshops were organized, where the draft LCAP was presented for collective review. During these sessions, community members, alongside the CAC, provided their insights, feedback, and suggestions. Their knowledge of local challenges and needs ensured that the plan was grounded in reality and addressed the most pressing issues. In addition to community inputs, technical partners and experts in the field of climate adaptation were invited to review the plan. Their expertise ensured that the LCAP was technically robust and aligned with best practices in the field. The Mayor of Mongla, representing the municipal administration, also reviewed the plan, ensuring it aligned with broader city development goals and had the necessary administrative support. By involving a diverse set of stakeholders in the validation process, the LCAP was shaped to be both locally resonant and technically rigorous, ensuring its successful implementation and long-term impact.

4.1.12 Forwarding LCAP to the Local Adaptation Centre's Authorities

After its validation, the LCAP for each community in Mongla was formally presented to the authorities and decision-makers associated with the Local Adaptation Centre. While the LAC associated committees and leadership played an active role in reviewing, endorsing, and guiding the plans. Their endorsement was crucial as it ensured alignment with Mongla's broader climate resilience goals and facilitated the mobilization of necessary resources for implementation.

Step 4.2: Formulation of the Ward Climate Adaptation Plan (WCAP)

The Ward Climate Adaptation Plan (WCAP) played a crucial role in the process, focusing on community engagement and stakeholder collaboration. It involved the development of individual Local Climate Adaptation Plans (LCAPs) by the Climate Adaptation Committees (CACs) for each ward, addressing specific climate challenges and vulnerabilities. Through stakeholder training, mapping, and collaboration, the WCAP was shaped, reflecting the ward's unique adaptation needs. The plan identified priority interventions and timelines, ensuring effective implementation. Validation by key stakeholders ensured alignment with community priorities before presenting the WCAP for approval and implementation.

4.2.1 Stakeholder Mapping

The project implementation team collaborated with communities to construct a detailed stakeholder map for each ward. By ensuring that every segment of the community, from varied livelihood and income groups to specific settlements, was acknowledged and involved, the approach emphasized local empowerment. With a

clear understanding of each group's distinct dynamics and needs, the stakeholder map acted as a valuable tool, guiding every consultation and engagement during the WCAP development process. This method ensured that adaptation strategies resonated closely with the community's genuine needs and desires, emphasizing local voices and priorities.

4.2.2 Stakeholder Training

Training sessions were organized for stakeholders, emphasizing local ownership in climate adaptation strategies. CAC conveners, co-conveners, and representatives from various groups within each ward were equipped with knowledge of climate change and its localized impacts. These sessions were interactive, allowing participants to identify and assess specific vulnerabilities in their wards. They actively shaped their adaptation strategies, ensuring that local insights drove adaptation actions. The training also guided them on utilizing available resources and placing local perspectives and needs at the forefront of adaptation efforts.

4.2.3 Incorporating Local Climate Adaptation Plans (LCAPs) into Ward Climate Adaptation Plan (WCAP)

After completing 20 LCAPs by the CAC, a strategy was developed to combine these individual plans into a broader framework for each ward. This strategy aimed to ensure that the challenges and solutions identified in each LCAP were effectively included in the WCAP. The initial step was a detailed review and analysis of LCAPs. This review made sure that the main points of each LCAP were understood, highlighting the specific climate challenges, vulnerabilities, and proposed solutions for every ward.

Engaging with local stakeholders was an essential part of the process. Stakeholder consultations were organized in the form of workshops and meetings. During these sessions, CAC members, ward councilors, and other key stakeholders discussed the findings of the LCAPs and brainstormed on how to include them in the WCAP.

The integration of LCAPs was the next phase. The Facilitation team played a central role here, combining the insights and recommendations from each LCAP into the WCAP. This step ensured that the WCAP addressed the needs of each ward consistently. By incorporating the LCAPs into the WCAP, the process ensured that local expertise, perspectives, and collaboration were central. This approach addressed the specific climate risks and vulnerabilities of each ward and allowed local communities to be involved in their climate adaptation journey.

4.2.4 Develop Ward Climate Adaptation Plan

Using the LCAPs as a foundation and incorporating insights from stakeholder training, ward councilors, CAC representatives, and other key stakeholders collaborated to create the WCAP for each ward. The implementation team assisted in coordinating the process, but the primary responsibility was entrusted to the community representatives. Through joint efforts, the WCAP was shaped to address the specific climate risks, vulnerabilities, and adaptation needs of the ward, ensuring it aligned with the unique challenges and goals of the local community.


Ward Climate Adaptation Plan (WCAP)
ওয়ার্ড ভিত্তিক জলবায়ু অভিযোজন পরিকল্পনা
19th October, 2023
Ward No 02
Food Pyramid

4.2.5 Priority and Timeline

In the subsequent stages, each ward identified the key interventions they planned to integrate within their WCAP. Using the knowledge from the LCAPs, stakeholder discussions, and training sessions, the ward community determined the most essential adaptation strategies. Alongside this, the implementation team assisted in setting a timeline for these actions. They were labeled as short-term (expected to be achieved within a year), medium-term (covering 2-3 years), or long-term (lasting 5-10 years). This organized approach ensured that adaptation measures aligned with the local community's needs and were carried out effectively.

4.2.6 Validation

After the CACs finalized the WCAPs, these plans were presented to the broader ward community, advisory committee, and project implementers for validation. This step ensured that the WCAPs were thoroughly assessed, drawing insights from local stakeholders. Feedback and recommendations were integrated, modifications made where needed, and the WCAPs were adjusted to better match the community's preferences, priorities, and hopes, ensuring a community-driven approach to climate adaptation.

4.2.7 Forwarding WCAP to the Local Adaptation Centre's Authorities

Once the WCAPs were validated and finalized for each community, they were presented to the Local Adaptation Centre authorities for approval and implementation.

Step 4.3: Formulation of the Town Climate Adaptation Plan (TCAP)

The Town Climate Adaptation Plan (TCAP) will play a crucial role, focusing on addressing climate challenges at the town level. It will involve integrating ward-level plans and scientific inputs, and aligning with national policies to create a holistic approach. The TCAP will be developed through collaboration with stakeholders and finalization by the Mayor, ensuring a well-informed and inclusive plan for climate adaptation and resilience at the town level.

4.3.1 Literature Review

In the upcoming phase of developing the Town Climate Adaptation Plan (TCAP), a comprehensive literature review will be undertaken. This review will encompass an array of sources, from academic journal articles to reports from renowned institutions like the World Bank and Asian Development Bank. Additionally, data from the Bangladesh Bureau of Statistics (BBS) will be analyzed to provide a quantitative foundation. The primary focus will be on understanding the economic facets and migration dynamics relevant to the town's climate adaptation needs. By integrating these diverse sources of information, the TCAP will be grounded in both current research and real-world data, ensuring that the strategies proposed are both informed and practical for the town's specific context.

4.3.2 Scientific Inputs from Climate Expert

To ensure the Town Climate Adaptation Plan (TCAP) is grounded in the latest scientific understanding, the technical partners will engage a prominent national-level climate change specialist. This expert's role will be to sift through authoritative sources, including peer-reviewed journal articles and reports from the Intergovernmental Panel on Climate Change (IPCC). Their analysis will shed light on the current and projected climate change impacts and vulnerabilities specific to the project area. The comprehensive report will cover both gradual and sudden climate threats, detailing their potential effects on various sectors and the livelihoods of the town's inhabitants. By integrating this scientific perspective, the TCAP will be better positioned to address the unique challenges posed by climate change in the area.

4.3.3 Alignment with National Policies and Acts

In the formulation of the Town Climate Adaptation Plan (TCAP), it's essential to ensure its consistency with broader national guidelines. The project team, in its dedication to this alignment, will reference several national frameworks. These include the National Adaptation Plan (NAP), National Adaptation Programmes of Action (NAPA), Bangladesh Climate Change Trust (BCCT), and the Climate Change Gender Action Plan (ccGAP). By grounding the TCAP within these established policies and acts, the plan not only gains credibility but also ensures that the town's adaptation strategies align with national priorities and objectives.

4.3.4 Integration of Ward Climate Adaptation Plans (WCAPs)

As individual WCAPs are finalized, they will be collectively combined to shape the forthcoming Town Climate Adaptation Plan (TCAP). The TCAP will stand as the primary reference, directing future adaptation interventions and activities across the town. Drawing inspiration from the specific insights and priorities of each ward, the TCAP will ensure a comprehensive approach to climate adaptation. Embracing the principles of locally-led adaptation, the plan will prioritize inclusivity, participation, and equity, ensuring that every community within the town has its unique challenges and needs addressed. This collaborative strategy will guarantee that the town's future adaptation actions are both effective and representative of its diverse communities.

4.3.5 Development of the Town Climate Adaptation Plan

The Mayor and Advisory Committee members will play a central role in shaping the Town Climate Adaptation Plan (TCAP). Drawing from the insights that will be gathered from LCAPs and WCAPs, the TCAP will be designed to address the unique challenges and needs of the community. To ensure a comprehensive and informed plan, the implementation team will provide scientifically collected empirical data and will interpret findings from the community-level Climate Change Vulnerability Assessment (CCVA). This collaborative approach will prioritize community involvement and participation. By placing decision-making power in the hands of local leaders and stakeholders, and ensuring that the adaptation strategies are based on local knowledge and needs, the TCAP will truly embody the essence of locally-led adaptation. This approach will ensure that the community's voice remains central and that adaptation strategies are relevant, sustainable, and effective in the future.

4.3.6 Sharing and Finalizing the TCAP

The Town Climate Adaptation Plan will be presented to a diverse group of stakeholders, encompassing government entities, municipal and Upazila authorities, port authorities, media, press representatives, CAC representatives, and the project steering committee. This comprehensive sharing will ensure that the plan benefits from varied insights and feedback, making it more comprehensive and attuned to the community's needs. Feedback will be actively incorporated, further emphasizing the commitment to putting the community at the forefront. The Mayor will then review the TCAP, ensuring it aligns with local priorities, and give the nod for resource allocation and the next steps in implementation. This process will highlight the significance of local leadership and decision-making, reinforcing the essence of community-centric adaptation.

Step 5: Scaling Up

In this step, the focus will shift towards expanding the process to new towns. The selection of these new areas will be based on a specific set of criteria. Here's a simplified explanation:

5.1 Selection of New Towns

The expansion phase will initiate with identifying new towns suitable for implementing the CRMFT project. The selection may depend on various parameters, such as the town's exposure to climate risks, its geographical location, demographic factors, and the area's economic condition.

5.2 Development of Selection Toolkit

A specially designed toolkit will be used to streamline the process of selecting new towns for the next phase of the CRMFT project. The toolkit will encompass several key criteria that will aid in the decision-making process. These criteria might include:

- **Climate Risk Assessment:** Prioritizing towns that are significantly prone to climate change effects, for example, towns in low-lying areas susceptible to flooding or coastal towns prone to cyclones, salinity intrusion, and sea-level rise.
- **Socio-Economic Considerations:** Analyzing socio-economic factors such as poverty levels and dependence on climate-sensitive sectors like farming or fishing, can influence the town's vulnerability to climate change.
- **Geographical Factors:** The geographical position of a town, such as proximity to the coastal regions, which can heighten the town's climate change vulnerability.
- **Adaptation Capacity:** Evaluating the town's capability to embrace and sustain changes, including resource availability, societal readiness for adaptation measures, and the existence of necessary infrastructure and services.
- **Political Support:** Assessing the degree of commitment from local governing bodies towards climate adaptation initiatives.

By applying this structured approach, project teams will be able to effectively pinpoint new towns suitable for the implementation of climate adaptation planning. This expansion strategy will ensure that successful methodologies and plans are disseminated across different regions, thereby fortifying resilience to climate change on a wider scale.

Reference:

- Roy, B., Penha Lopes, G., Uddin, M. A., Kabir, M. H., Lourenço, T. C., & Torrejano, A. (2022, April 1). Sea level rise induced impacts on coastal areas of Bangladesh and local-led community-based adaptation. International Journal of Disaster Risk Reduction; Elsevier BV. https://doi.org/10.1016/j.ijdrr.2022.102905
- Ahmed, N., & Diana, J. S. (2015, November 1). Coastal to inland: Expansion of prawn farming for adaptation to climate change in Bangladesh. Aquaculture Reports; Elsevier BV. https://doi.org/10.1016/j.aqrep.2015.08.001
- Awal, M. A., & Khan, M. A. H. (2020, July 17). Global Warming and Sea Level Rising: Impact on Agriculture and Food Security in Southern Coastal Region of Bangladesh. Asian Journal of Geographical Research, 9–36. https://doi.org/10.9734/ajgr/2020/v3i330107
- (2018, November). Nationwide Climate Vulnerability Assessment in Bangladesh. Ministry of Environment, Forest and Climate Change, Government of the People'S Republic of Bangladesh and GIZ, 83
- Ahmed, N., & Diana, J. S. (2015). Coastal to inland: Expansion of prawn farming for adaptation to climate change in Bangladesh. Aquaculture Reports, 2, 67–76. doi:10.1016/j.aqrep.2015.08.001
- Ahmed, S., Chowdhury, R., & Khan, M. (2021). Balancing growth and sustainability in Mongla. Sustainable Development Review, 19(2), 210–225.
- Alam, S., Huq, F., & Islam, H. (2018). Building Climate-Resilient, Migrant-Friendly Cities and Towns. Policy Brief. International Centre for Climate Change and Development. Dhaka.
- Alam, S., Huq, F., & Islam, H. (2018). Building Climate-Resilient, Migrant-Friendly Cities and Towns. Policy Brief. International Centre for Climate Change and Development. Dhaka.
- Awal, M. A., & Khan, M. A. H. (2020). Global warming and sea level rising: Impact on agriculture and food security in southern coastal region of Bangladesh. Asian Journal of Geographical Research, 9–36. doi:10.9734/ajgr/2020/v3i330107
- BEZA. (2015). Mongla Export Processing Zone. Bangladesh Export Processing Zones Authority.
- Chen, Y., & Muller, A. (2021). NGO contributions to urban climate resilience. Nonprofit and Voluntary Sector Quarterly, 50(4).

- Chowdhury, S., & Rahman, L. (2022). Community perspectives on climate resilience in Mongla. Community Development Journal, 37(1), 58–76.
- Conduction and Developing Disaster Management Plan at Upazila Level. Area Development Organisation. (2014).
- Dasgupta, R., & Shaw, R. (2021). Community-centric approaches for climate adaptation. Journal of Community Practice, 29(1).
- Dasgupta, S. (2015). Effects of Salinity on Agricultural Land in Coastal. Bangladesh.
- Development Authority, K. (2011). Master Plan and Detailed Area Plan for the Extension of the Khulna Master Plan Area up to Mongla Town (2012-2032). Government of the People's Republic of Bangladesh. Ministry Of Housing And Public Works.
- Dey, N. (2023). Future Projections of Soil Salinity in Coastal Bangladesh.
- General Economics Division (GED). (2018).
- Government of Bangladesh (GoB). (2020).
- Government of Bangladesh. (2020). Projected Sea-Level Rise for Mongla. p. 847.
- Habiba, U. et al. (2013). Study on Salinity Intrusion in Coastal Bangladesh.
- https://openknowledge.worldbank.org/entities/publication/2c9150df-52c3-58ed-9075-d78ea56c3267
- https://www.globalresiliencepartnership.org/mongla-bangladesh-a-model-of-successful-adaptability/
- https://www.tbsnews.net/thoughts/trapped-population-combined-impact-climate-change-and-covid-19-118429
- https://www.theguardian.com/global-development/2022/jan/24/port-in-a-storm-the-trailblazing-town-welcoming-climate-refugees-in-bangladesh
- Huq, S. (2018, March 28). Building climate resilient, migrant-friendly cities. Retrieved 24 January 2024, from The Daily Star website: https://www.thedailystar.net/opinion/politics-climate-change/building-climate-resilient-migrant-friendly-cities-1554172
- Huq, S. (2023). Urban climate resilience: Learning from Mongla. Climate Policy Review, 33(1), 87–95.
- Islam, M. K., & Peterson, A. (2021). Climate change impacts in Mongla: Challenges and adaptations. Journal of Environmental Studies, 15(2), 45–59.
- Khan, M., Chowdhury, M., & Huq, S. (2021). Climate-Resilient Migrant-Friendly Towns: A Conceptual Framework. Policy Brief. International Centre for Climate Change and Development. Dhaka.
- Khan, S., & Iqbal, M. (2022). Climate-induced migration in Mongla. Migration Studies, 10(4), 34-47.

- Kumar, A., & Taylor, M. (2021). Stakeholder engagement in climate adaptation: Lessons from the field. Journal of Environmental Management.
- Lee, K. H., & Anas, A. (2021). Private sector roles in climate resilient cities. Journal of Cleaner Production.
- Mongla EPZ indicators (Source: Data from Bangladesh Export Processing Zones Authority https://www.bepza.gov.bd/epz-profile/mongla-epz).
- “Mongla port: Harbouring the future of Bangladesh,” Dhaka Tribune, January 21, 2024.
- Nationwide Climate Vulnerability Assessment in Bangladesh. Ministry of Environment, Forest and Climate Change, Government of the People‘S Republic of Bangladesh and GIZ. (2018).
- Patel, S. S., & James, P. (2020). Leveraging academic research for climate action. Nature Climate Change, 10(2).
- Population and Housing Census (2022). Bangladesh Bureau of Statistics.
- Rahman, M., & Bhattacharya, D. (2006). Impact of Salinity Intrusion on Agricultural Productivity in. Bangladesh.
- Rahman, M. (2022). Mongla’s vision as a climate-resilient town. Urban Development Journal, 28(3), 112–120.
- Rahman, M. S., & Khan, M. H. (2022). The role of local government in urban climate resilience: A case study from Bangladesh. Cities, 112.
- Rising Sea Levels in the Bay of Bengal: Implications for Mongla. (2023). Global Resilience Partnership (GRP).
- Roy et al. (2022). Impacts of Sea-Level Rise in Banishanta and Sutarkhali Union Areas.
- Roy, B., Penha-Lopes, G. P., Uddin, M. S., Kabir, M. H., Lourenço, T. C., & Torrejano, A. (2022). Sea level rise induced impacts on coastal areas of Bangladesh and local-led community-based adaptation. International Journal of Disaster Risk Reduction: IJDRR, 73(102905), 102905. doi:10.1016/j.ijdrr.2022.102905
- Shaw, R. (2020). Interdisciplinary approaches to climate change: A review. Environmental Research Letters, (7).
- Smith, B., & Rahman, A. (2019). International collaboration for local climate resilience. Global Environmental Change,57.
- Soil Resources Development Institute (SRDI). (2010). Soil Salinity Report.